INTRODUCTION

The 2000 Virginia Water Quality Assessment Report is a summary of the water quality conditions in Virginia during the past five years (January 1, 1994 – December 31, 1998). This report, compiled by the Department of Environmental Quality (DEQ) with the assistance of the Department of Conservation and Recreation (DCR), is submitted to the Environmental Protection Agency and Congress to satisfy the federal reporting requirements under Section 305(b) of the Clean Water Act.

Summary information on water quality and the various programs developed by the DCR, DEQ and other federal, state and local agencies to assess and protect water quality and human health have been incorporated in this report. Also included in this report is assessment data provided by quality assured citizen volunteers. Detailed sampling information for the nine river basins found in Virginia is incorporated in Appendix B of this report. This information includes the river basin sampled, the monitoring station identification, the parameter(s) sampled, assessment methodology used and associated comments. Any additional information concerning specific stations or the data presented in this report can be retrieved upon request by contacting the DEQ's central or local regional offices.

Many aspects of this assessment process are the same as previous assessments but several changes and/or enhancements have been implemented for this reporting period which are different from previous assessments. First and foremost, the overall assessment of water quality, once again, incorporates a five-year period. Earlier assessments had been based on a two-year period which made it very difficult to accurately predict water quality because the number of sampling data points available were limited. By going to a five-year assessment period, more data points are available and a better analysis of the data can be performed. Secondly, the use of the Afully supporting but threatened@ category is used again in several different ways. This category includes Department of Conservation and Recreation (DCR) Ahigh priority@ watersheds and DEQ designated Anutrient enriched waters@ (9VAC 25-260-350). These waters are considered threatened due to administrative and/or evaluated reasons and not specific to any designated use. Shellfish waters with temporary harvesting restrictions are considered threatened for shellfish consumption, fish tissue screening value (SV) exceedances are considered threatened for fish consumption use and exceedances of sediment and nutrient SV's are considered threatened for aquatic life use support (ALUS). Citizen monitoring data which indicate exceedances of Water Quality Standards are considered threatened for the designated use associated with the exceedances. Finally, any conventional pollutant data that results in > 10% but less than the binomial cutoff is considered threatened according to the binomial assessment guidelines.

Another important modification to this assessment is the inclusion of an estuarine benthic and toxic review of water quality. Previously, this type of estuarine water quality information was scarce and not very reliable. The Chesapeake Bay Program (CBP) has been very active in sampling and analyzing estuarine waters and has provided DEQ with reliable data for assessment review.

Equally important to this assessment is the inclusion of U.S. Forest Service (USFS) and "quality assured" citizen monitoring data. DEQ has been active with several citizen monitoring groups enhancing the quality of the monitoring data provided by these various groups. Additionally, USFS has shared a substantial amount of water quality data associated with the George Washington and Jefferson National Forests. These additions, along with the benthic data provided by CBP, has increased the spatial coverage of water quality assessment throughout the state and is an important step in reaching a comprehensive assessment of all waters within the state.

In addition to the previously described changes in the 2000 water quality assessment process, the 305(b)/303(d) guidance manual has been revised and updated in an attempt to enhance assessment quality and consistency among the regional offices. The revised manual has been reviewed by an academic advisory committee (AAC) made up of academic advisors from several state universities who are familiar with water quality issues. The purpose of this committee is to review the procedures associated with water quality assessment and to provide insight concerning specific technical issues DEQ and the committee feels may need additional revision or clarification. DEQ has also made this guidance document available to the public for comment and additional revisions from this review process will likely be necessary.

In July 1997 the Department established the Water Quality Monitoring Task Force. The purpose of the Task Force is to update the water quality monitoring program to conform with the monitoring requirements of

the Water Quality Monitoring, Information, and Restoration Act of 1997. The Task Force has analyzed the current operational plans of the various monitoring programs within the Department and has begun implementation of a two-year project to revise the overall monitoring strategy. A draft strategy has been developed and the expected outcome of this effort will be more consistent station siting, greater stream mile coverage, and expanded pollutant analyses so overall water quality can be determined within specific and easily identifiable, geographically defined water segments.

To assist in the goal of increasing the number of stream miles monitored, the Department=s newly established volunteer monitoring program has begun the role of coordinating the monitoring activities of participating volunteer groups. Consistent quality control practices and quality assurance procedures within the volunteer monitoring programs will ensure the creditability and precision of the volunteer data for use in the Amonitored data@ assessment process.

Alternative station siting selection criteria are also being explored as a basis for expanding river miles monitored. Historical monitoring station selection is being used to determine any need for additional monitoring in those waters known to have water quality problems.

Expanded pollutant analysis is currently being conducted using new techniques developed by the Department. These include clean metals monitoring, additional pathogenic bacteria monitoring and pilot projects for trace organic compounds in whole water column analyses.

The pending results of the long term water quality trend analysis being conducted by Virginia Polytechnic Institute and State University (VPI&SU) should provide additional insight for the monitoring program Task Force and will likely affect future monitoring site location, coverage, and parameter selection.

Another continuing aspect of the 2000 water quality assessment involves the sampling and analysis for a relatively unknown microorganism ***Pfiesteria piscicida.*** This microorganism has been linked to extensive fish kills in North Carolina estuaries. Leading experts from North Carolina State University and the Florida Department of Environmental Protection have not identified the toxic microbe in samples from Virginia. However, *Pfiesteria piscicida* was found in several Maryland rivers with fish kills during the summer of 1997. No confrmed cases were found in the waters of Virginia during the 1999 summer season and at this time, DEQ has reserved judgement on water quality issues associated with *Pfiesteria*. Additional information is provided in Chapter 2.5 of this report.

Finally, DEQ and DCR, with inputs from other federal, state, local and citizen stakeholders, have begun a cooperative effort to schedule and develop Total Maximum Daily Loads (TMDLs) for waters not meeting Water Quality Standards, as identified in the 303(d) impaired waters list. These efforts will result in the development of pollutant “load allocations” which will ultimately allow these waters to return to fully supporting all designated uses.

For more information relating to water quality programs and initiatives visit the DEQ website at WWW.DEQ.STATE.VA.US.